REMARKS

ON THE

OBSTETRIC FORCEPS,

WITH A

DESCRIPTION AND DEMONSTRATION

OF

TARNIER'S NEW INSTRUMENT.

BY

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REMARKS ON

THE OBSTETRIC FORCEPS,

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BY

FORDYCE BARKER, M.D.

In my remarks this evening, I shall endeavor to bear in mind that I am not addressing a class of medical students, but that I am before a learned society, a body of educated and experienced men. I shall, therefore, aim to avoid taking up your time by enunciating elementary principles or discussing doctrines which the science of the present day has discarded.

All are aware that there has been a remarkable and progressive change in obstetric science, since the early part of the present century, as regards the propriety and necessity of the use of the forceps, and especially is this true of teachers and writers in the English language. It is well known that early teaching was to the effect that the forceps should not be used except under circumstances where it became conclusive that without the instrument, delivery of the woman could not be effected. This was the law as laid down, and strongly emphasized by detailing the symptoms which alone could justify their

[1] A discourse delivered before the N. Y. Academy of Medicine, Oct. 18, 1877.

use, by such great authorities as Hunter, Denman, Osborne, Clarke, Collins, Lee, and other writers of that day. Their practice was in harmony with their teaching, as Clarke used the forceps only once in 742 cases, Collins once in 617, Ramsbotham once in 729. In the memoirs of Dr. Joseph Clarke, by Dr. Collins, it is stated that he "only used the forceps once in the multitude of cases under his care in private," and then he did not succeed in delivering the child.

There is a marked change in the teaching of later writers, such as Davis, Dewees, Rigby, Ramsbotham, Meigs, Hodge, and Churchill, as to the indications which required their use, but they were so over-weighted by the influence of their predecessors that they negatived their wise inculcations by their warnings of danger in the use of the instruments. Hence, we find but little change in practice, as to frequency in the use of the instruments, as Ramsbotham applied the forceps in only 1 case in 729, Churchill 1 in 546, Lever 1 in 518, while Beatty, who was the pioneer in advocating a more frequent use of the instrument as a safer mode of delivery, than the methods then in vogue, both for mother and infant, only resorted to their use in 1 case in 131. The contrast is very striking between these Anglican obstetricians and their continental contemporaries, as Naegele delivered with the forceps 1 woman in 31, Caro 1 in 14, Siebold 1 in 7. We may note the fact also, that Clarke delivered by craniotomy 1 case in 148, Collins 1 in 141, Churchill 1 in 149, while craniotomy was found necessary in the practice of Naegele in only 1 case in 1,711, and in that of Siebold in only 1 in 2,093.

Now, if we search for the reasons why our great obstetrical authorities in English literature had such a horror of the forceps, I think it will be found chiefly in the three following facts:

1st. They were ignorant of the mechanism of labor. The philosophical studies of Solayres in this direction, developed and clearly brought out by his pupil Baudelocque, and nearly perfected as a science by Naegele, were unknown to Hunter, Denman, Collins, and Clarke, who were the master-minds that gave the coloring to the teaching in this point to their successors. The practice and the precepts of Smellie were forgotten or carried no weight.

2d. While they greatly exaggerated the danger to the mother and the child from the use of the forceps, they did not recognize the danger, which results to both, from prolonged labor.

3d. They confounded the difficulty and skill demanded in their use, in the comparatively few cases where they are required when the head is at or above the superior strait, as being equally true in the many cases where we now use the instruments when the head is low in the pelvic cavity or at the outlet.

It would be an interesting and not unprofitable study to trace out the causes which had contributed chiefly to bring about the change in professional opinion and practice. A scientific comprehension of the mechanism of parturition taught the intelligent and instructed obstetrician how to detect and remedy, by the use of the forceps, many of the obstacles which retard or prevent the completion of labor.

Burns, more strongly and more justly, pointed out the dangers to the mother which results from delayed labor, than any of his predecessors among English authors had done. He first emphasized the fact that the continued pressure of the head on the soft parts is productive of further diminution of the capacity of the pelvis, for inflammation is excited, and, at the same time, the return of the blood by the veins, and of serum by the lymphatics is obstructed, and that this swelling of the soft parts contained within the pelvis may take place, although the head be not impacted, while the head cannot long be impacted without producing this result.

The first paper which boldly took the ground that the forceps is not a dangerous instrument, was by Dr. John Beatty, of Dublin, and was published in 1829. In this paper he states that in his private practice he had used the forceps in 105 cases, and that in no instance did any unpleasant result follow. None of the mothers died, none of them had their perineum lacerated, nor any of those evils which are set forth as the effects of the forceps, and still more, all the children, where there was any reason to think they were alive at the commencement of the labor, were born living, and none of the whole number had any injury or mark whatever inflicted by the instrument. In a volume of *Contributions on Medicine and Midwifery*, by his son, the late Dr. Beatty, of Dublin, it is stated that for a period of fully forty years, including a period before and after the

publication of this paper, the forceps were banished from practice in Ireland. Apropos to this paper, I will mention a curious and amusing anecdote told me at his dinner-table, twenty years ago, by the late Professor Montgomery, of Dublin. He said that in the early part of the century, Dublin obstetrics was ruled by a few autocrats, whose authority was so unquestioned, that no one else presumed to write on the subject, or dared to express an opinion not in accordance with their views. Immediately after the publication of the paper by Dr. Beatty, he received a challenge to mortal combat from one of the most eminent of these obstetricians, who deemed the paper, although it made no allusion to the practice of any one else in that city, an injurious reflection on his teaching and practice.

In a period of twenty-five years a remarkable change took place in the practice of the Rotunda Lying-in Hospital of Dublin. Under the mastership of Labatt, from 1815 to 1822, there were 21,867 births in the hospital, and there is no record of the forceps having been used in a single instance; while under the mastership of Shekelton, from 1847 to 1854, there were 13,748 births, and the forceps were used 220 times, or once in every 62 cases.

A paper by the late Sir James Y. Simpson, in which he aimed to demonstrate by statistics, that the natural and the infantile mortality attendant upon parturition increases in ratio progressive with the increased duration of the labor, contributed greatly to awaken obstetricians to the danger of delay. In 1858 I read a paper before the Medical Society of the State of New York, that was published in the volume of *Transactions* for that year, which was severely criticised on the ground, that by implication it inculcated a dangerous frequency in the use of the forceps. At the present day it would be regarded as exceedingly temperate in its advocacy of the forceps.

Since 1860 many able papers have appeared on this subject, all of which, without exception, have urged a more frequent use of the instrument, and a very marked change of teaching is manifest in the works of systematic authors in the English language, who have written since that date. The remarkable series of papers by Dr. George Hamilton, of Falkirk, Scotland, are well known to the profession, because they appeared in such

widely circulated journals as the *British and Foreign Med.-Chir. Review* and the *Edinburgh Medical Journal*, and this series of papers must have greatly influenced the change in practice. But the elaborate paper by Mr. Philip H. Harper, published in the first volume of *Transactions of the London Obstetrical Society*, is not so well known, because the early volumes of *Transactions* have, as a rule, but a limited circulation. I know nothing of the writer personally, but in my judgment this is the most able paper which I have read as to the safety and duty of more frequent use of the forceps, and I have been greatly surprised to see that subsequent systematic authors have so seldom referred to this paper which covers the whole ground. I can only make a passing allusion to the papers by Dr. James Hardie, of Manchester, published in the *Edinburgh Medical Journal* in 1866, and the very able and convincing paper, by Dr. George H. Kidd, in the *Dublin Journal of Medical Sciences* in 1872. Probably no reports made from the Rotunda Lying-in Hospital, of Dublin, have so surprised the profession, or have so influenced it in regard to the use of the forceps, as those of its late distinguished master, Dr. George Johnston. In seven years, from Nov., 1868, to Nov., 1875, in 7,027 deliveries, the forceps were used in 639 cases, averaging 1 in 11 cases. In the last year of his mastership, the forceps were used in 1 in 9 cases. In the whole seven years, the operation of craniotomy or cephalotripsy was resorted to in only 29 cases. In one year, from Nov., 1873, to Nov., 1874, the forceps were used in 138 cases, and there was not a single craniotomy. These reports demonstrate that the mortality to mother and child is lessened as the instrument is more frequently used, while the more repulsive and dangerous operation of craniotomy is reduced to a minimum.

During the past year my friend and former pupil, Professor E. S. Dunster, of the University of Michigan, has published a paper on the use of the forceps in abbreviating the second stage of labor, in which he has given a most excellent *résumé* of the recent literature on this subject, and has also presented, in a logical and convincing form, a series of arguments in favor of a more frequent use of the instrument. This paper ought to have a much wider circulation in the profession than I fear it will

receive, from the fact that its publication is chiefly limited to the *Transactions* of a State Medical Society.

The plain practical question to be settled by the accoucheur in every case is, which is safer for the mother and the infant, the use of the forceps or the delay of labor? I think all intelligent men will agree that the science of the present day has settled the point, which decides this question in a large majority of cases, viz., that there is no danger in the use of the instrument where there is no such disproportion between the diameters of the fetal head and the pelvis as to make delivery impossible, without injury to the maternal structures or dangerous compression of the fetal cranium, provided the operator is an expert who has chosen wisely his forceps and thoroughly comprehends the mechanism of labor. A voice suggests, "laceration of the perineum," which implies, I suppose, that is a danger to be apprehended from the use of the instruments. Now my own opinion is that the forceps, when properly used, is an instrument that preserves the perineum much more frequently than it causes its rupture. The danger of laceration is very much increased by long-continued pressure of the head of the child against the soft parts of the mother. If the vulva be so narrow that the head cannot pass without laceration, of course laceration of the perineum will occur, even though the head be allowed to pass through unaided by art. My practice is, when the vulva is fully dilated, to remove the forceps, and then introduce the fingers into the rectum and pull the head forward and thus deliver. I never complete the delivery by rapid removal of the head through the outlet, by traction with the forceps.

But I have no intention at the present time to discuss details as to the mode of using the instruments, for if I should, the wisest thing that I could do would be to read the directions given by Dr. Barnes in his unique and most valuable work on the Obstetric operations, which I assume all members of this Academy have carefully studied.

We all must agree that there are dangers in the use of the forceps when the fetal head is at or about the superior strait; danger of injuring the soft parts of the mother by making traction in the wrong direction, and of too violent pressure of the head. The question to be considered is,

whether the safety of the mother and child is not greatly increased by early delivery, rather than by the following the teaching of the older writers, who never used the long forceps, but always resorted to the perforator and craniotomy, thereby inevitably sacrificing the life of the child.

There are three essential points to be considered with reference to delivery from the superior strait: 1. The operator should thoroughly comprehend the cause which renders this mode of delivery necessary.

2. The mechanism for overcoming that cause should be thoroughly understood. The operator must know perfectly what the relation is between the diameters of the fetal head and the diameters of the pelvis through which it is to pass, in order that he may know how and when to change the direction of the tractions.

3. The operation should be performed slowly. I am never less than a half-hour in bringing the head down from the superior strait, and in some instances I have been a full hour.

Finally, in safe delivery from the superior strait, very much depends upon the instrument employed. My own preference is for Simpson's forceps; but in some rare cases, where the head is above the strait, the forceps known as Dubois' or White's is undoubtedly better.

I have not the time now to discuss the amount of compression that the fetal head will safely bear. I will only remark that a compression continued for a sufficient time on a fixed point of the sides of the head, to mould its form, may be perfectly safe, while the same degree of compression suddenly made over the whole extent of the transverse diameters of the head, by the slipping of the instrument, would prove fatal. It is therefore of the greatest importance that the form of the blades should be such as will best secure the hold of the head, and that the blades should have sufficient strength. Strength is safety, weakness is danger. I have seen many instruments which have seemed to me defective as regards one or the other of these points.

It was not my intention to speak of my personal experience and practice, but in response to the call I have no hesitation in saying that in my private practice during the past twenty-five years, I have used the forceps in one case in fifteen. For

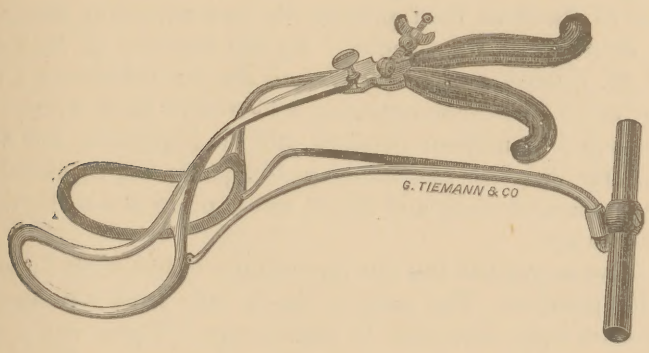
the last ten years, my average has been one in every twelve cases. I have never, in a single instance, had occasion to regret their use, but when reviewing my cases at the termination of the labor, I have often felt that I should have done better if I had used the instruments at an earlier period of the labor. But one of my private patients whom I have delivered with the forceps has died during the puerperal period, and in this case, the convalescence was perfectly satisfactory, until the sixteenth day after labor, when she was attacked with phlegmasia dolens, from which she had so far recovered as to go out for a drive. On the thirty-fifth day on rising from bed to dress, while pulling on her stockings, she suddenly fell over, the face became purple, and she made violent gasping efforts to breathe, and died within an hour from the time of the attack.

In not a single private patient have I had laceration of the perineum, from the use of the forceps, occur to such an extent as to require subsequent surgical treatment. I speak confidently when I assert that not in a single instance has the forceps caused the death of the child. I may add that in private practice during this period of twenty-five years, I have never once had occasion to resort to craniotomy or cephalotripsy, and that in twenty-two years of service in Bellevue Hospital I delivered but four women by craniotomy.

On the table before you there are sixty-seven different forceps, many of them furnished by the courtesy of Mr. Stohlman and Mr. Ford. You will see an exact copy of the original instruments of Chamberlen, with the many modifications which have been suggested by the ingenuity of different obstetricians, each of which the inventor probably supposed would immortalize him. It is interesting to study them as historical curiosities.

But this instrument which I now show you, devised by M. Tarnier, Surgeon-in-chief of the Maternity Hospital at Paris, is now exciting great interest and warm discussion in that city. The theory of the instrument may be thus briefly stated. M. Tarnier claims that when the head is at or above the superior strait, with the forceps in ordinary use, it is impossible to make traction in the exact axis of that strait, because of the resistance to the direction of the handle of the instruments by the perineum. It is necessary to make traction in a line somewhat forward of the axis of the superior strait, hence, a

certain amount of injurious force is necessarily wasted against the posterior surface of the symphisis pubis. In Tarnier's instrument this is obviated by a posterior curve in the blades, which permit traction to be made in the axis of the superior strait without making undue pressure backward on the soft parts. You will observe that traction is made by means of independent rods which are attached to the posterior border of



the blades of the instrument, and terminate in a cross-bar just beyond the handles. The instrument is no more difficult of application than the ordinary forceps. The blades are locked and the amount of compression is regulated by this cross screw —a feature of the instrument which I wish could be obviated, because I believe that the degree of compression should be always perceptible and controllable by an intelligent hand. When the instrument is applied to the fetal head at the superior strait, traction is first made downwards and backwards, but as the head approaches the cavity of the pelvis, the handle of the forceps begins to rise, thus indicating in what direction traction should be made to correspond to the axis of the pelvis, through which the fetal head is passing. As the handles rise, the tractor is brought up to it, and so we have an automatic indicator which gives direction to the force of the operator. Hence, the instrument is named *forceps à aiguille*, or needle-forceps, in the same sense as we speak of the needle of a compass. Another merit of the instrument claimed by M. Tarnier is that it

allows the fetal head such mobility as to admit of its passing through the pelvis and soft parts in the varying position which it would assume during a natural labor. Ordinarily its movements are governed by the forceps and the direction of the tractions.

I had hoped to be able to demonstrate the action of the instrument before you this evening, but I am unable to do so because I can find no manikin in the city, with the caoutchouc lining of the cavity and perineum by which the changes in position of the fetal head produce the corresponding changes in the direction of the handles. By the courtesy of M. Tarnier and M. Pinaud, *ex-chef de clinique des accouchements*, I had a most satisfactory demonstration and trial of these forceps with a fetus and caoutchouc manikin, and the impression left on my mind was that this instrument would prove highly useful in a certain class of cases, and that it was a positive contribution to obstetric art.

I have as yet had but one opportunity to test these forceps in actual practice. The patient was a lady from Chicago, who had once been delivered by craniotomy. There was a slight contraction of the antero-posterior diameter. After many hours of labor I found that the head did not engage in the superior strait, while the safety of the mother demanded that there should be no longer delay. I applied Tarnier's forceps, in this case much easier I am sure than I could any other; but unfortunately the only result I could obtain was to change a vertex to a face presentation, which did not at all aid in accomplishing delivery. You see by this demonstration how this came about, for the head was necessarily seized near the frontal extremity of the occipito-frontal diameter, and the result must have been the same, had I used the forceps of Dubois. I then decided to deliver by turning, and the result proved that it was most fortunate that I had not been able to deliver the head by the forceps. After version was completed, the trunk of the child was so enormously large (I do not remember ever to have seen a larger), it required all the force of my friend and partner, Dr. Smith, and myself to extract the buttocks and the body of the child. The head was by far the easiest part of the child to deliver. By this method, I delivered a perfect and unmutilated child; but if I had been successful in delivering the head

by the forceps, the body could only have been extracted by cutting it to pieces.

I will only say in conclusion that time and experience can alone determine the real value of the instrument devised by the distinguished French obstetrician.